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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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03/16/2004

Razieh Roufoogaran

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04/29/2010

GARLICK HARRISON & MARKISON

P.O. BOX 160727

AUSTIN, TX 78716-0727

EXAMINER

TRAN, PABLO N

ART UNIT

PAPER NUMBER

2618

NOTIFICATION DATE

DELIVERY MODE

04/29/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

MMURDOCK@TEXASPATENTS.COM

SMCWHINNIE@TEXASPATENTS.COM

<b>Office Action Summary</b>	<b>Application No.</b> 10/802,014	<b>Applicant(s)</b> ROUFOOGARAN ET AL.	
	<b>Examiner</b> Pablo N. Tran	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 3-5, 7-15, 18-20 and 22-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 16 and 21 is/are rejected.
- 7) ☒ Claim(s) 2 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6, 16, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacNally et al. (hereinafter "MacNally", US Pat. No. 7,065,327) in view of Willis (US Pat. No. 6,768,443).

As per claim 1, MacNally disclose a transformer (see fig. 1, col. 5/ln. 12) having a first winding and a second winding, wherein the first winding is operably coupled to an antenna and the second winding coupled to a power amplifier (see fig. 1/item PA) and a low noise amplifier (see fig. 1/item LNA), wherein the power amplifier is enabled when the radio front end is in a transmit mode and the low noise amplifier is enabled when the radio front end is in a receive mode (col. 6/ln. 16-26); and a matching network (see fig. 1, col. 5/ln. 12-13) operably coupled to the second winding, wherein the matching network provides a first impedance when the radio front end is in a transmit mode and provides a second different impedance when the radio front end is in a receive mode such that impedance at the first winding is substantially similar in the transmit mode

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when the power amplifier is enabled and in the receive mode when the low noise amplifier is enabled (see col. 6/ln. 37-64).

McNally disclose that the RF matching network is designed to provide a matching impedance (50 ohms), in transmit or receive mode, to match the impedance of the first winding (antenna impedance (50 ohms), col. 6/ln. 37-56) but not explicitly an adjustable load. Willis discloses such an adjustable load that provide impedance matching in the transmit mode and receive mode (fig. 1/no. 16, col. 2/ln. 29-40, especially R2 and R5). Therefore, it would have been obvious to one of ordinary skill in the art for McNally to utilize such adjustable load network, as taught by Willis, in order to improve signals transmission while optimized power consumption effectively.

As per claims 6 and 21, the modified communication apparatus of McNally and Willis further disclose determining the load impedance selection signal based on at least one of impedance matching of load on single-ending winding, output power requirements, or receiver sensitivity (see McNally, col. 6/ln. 48-col. 7/ln. 57, see Willis, col. 2/ln. 29-65).

As per claim 16, McNally disclose a radio frequency integrated circuit (fig. 1, col. 2/ln. 20-21) comprising a radio front end (fig. 1) operable coupled to transceiver radio frequency signals; a low noise amplifier (fig. 1/item LNA) operable coupled to the radio front end, wherein the low noise amplifier receives inbound RF signals from the radio front end, and wherein the low noise amplifier amplifies the inbound RF signals to produce amplified inbound RF signals; down conversion module (fig. 1, col. 3/ln. 30-57) operable coupled to convert the amplified inbound RF signals into inbound baseband

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signals; baseband processing module (fig. 1, col. 3/ln. 30-57) operable coupled to convert the inbound baseband signals into inbound data and to convert outbound data into outbound baseband signals in accordance with a wireless communications protocol; up conversion module (fig. 1, col. 3/ln. 30-57) operable coupled to convert the outbound baseband signals into outbound RF signals; and a power amplifier (fig. 1/item PA) operable coupled to amplify the outbound RF signals to produce amplified outbound RF signals and to provide the amplified outbound RF signals to the radio front end. McNally further disclose the radio front end includes a transformer (fig. 1, col. 5/ln. 12) having a first winding and a second winding, wherein the first winding is operable coupled to an antenna and the second winding coupled to at least one of a power amplifier and a low noise amplifier; and a matching network provides a first impedance when the radio front end is in a transmit mode and provides a second different impedance when the radio front end is in a receive mode such that impedance at the first winding is substantially similar in the transmit mode and in the receive mode (see col. 6/ln. 37-64).

McNally disclose that the RF matching network is designed to provide a matching impedance (50 ohms), in transmit or receive mode, to match the impedance of the first winding (antenna impedance (50 ohms), col. 6/ln. 37-56) but not explicitly an adjustable load. Willis discloses such an adjustable load that provide impedance matching in the transmit mode and receive mode (fig. 1/no. 16, col. 2/ln. 29-40, especially R2 and R5). Therefore, it would have been obvious to one of ordinary skill in

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the art for McNally to utilize such adjustable load network, as taught by Willis, in order to improve signals transmission while optimized power consumption effectively.

***Allowable Subject Matter***

3. Claims 2 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

4. Applicant's arguments filed 01/04/10 have been fully considered but they are not persuasive.

The Applicant's stated that, "Both MacNally and Willis references fail to show an adjustable load coupled to a second winding of a transformer or any type of impedance selection signal". MacNally disclose such matching network that provide an impedance when the radio is in the transmit mode and a different impedance for the receive mode. However, MacNally does not explicitly disclose an adjustable load such that the load can be adjusted (select) to match the antenna impedance (50 ohms) in the transmit mode and receive mode. Willis disclosed such an adjustable load (see fig. 1/no. 16) that is adjustable to select an impedance for transmit mode and another impedance for receive mode to match the antenna impedance (50 ohms). Therefore the rejection is proper.

The Applicant's stated that, "the combination of MacNally and Willis failed to suggest or make obvious". Both references taught a matching network to provide matching impedances in transmit and receive mode. Therefore, it would have been obvious for MacNally to utilize the adjustable matching network of Willis to effectively match the antenna impedance in transmit and receive mode while optimized power consumption effectively.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Tran whose telephone number is (571)272-7898. The examiner normal hours are 9:30 -5:00 (Monday-Friday). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can

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be reached at (571)272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) System. Status information for Published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-directauspto.gov>. Should You have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (in USA or CANADA) or 571-272-1000.

April 26, 2010

/Pablo N Tran/

Primary Examiner, Art Unit 2618